

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

Claims 1-5 (canceled)

Claim 6 (new): A protection circuit for protecting a battery pack having rechargeable batteries connected in series from overcurrents and overvoltages, the protection circuit comprising:

a protection device having a heating resistor and a fuse element provided on a circuit board; and

sensing means for detecting an overvoltage across any of the batteries in the battery pack and switching a current flowing into the heating resistor,

wherein the fuse element is melted in an overcurrent condition, and in an overvoltage condition on any of the batteries, and

wherein the sensing means switches on the current flowing into the heating resistor, thereby causing the heating resistor to generate heat and the fuse element to be melted.

Claim 7 (new): The protection circuit according to claim 1, comprising a plurality of sensing means for sensing an overvoltage between different batteries, wherein in an overvoltage condition on any of the batteries, the sensing means switches on a current flowing into the heating resistor.

Claim 8 (new): The protection circuit according to claim 1 or 2, wherein in the overvoltage condition on any of the batteries, a voltage across a predetermined number of the batteries in the battery pack is applied to the heating resistor.

Claim 9 (new): A protection circuit for protecting a battery pack having rechargeable batteries connected in series from overcurrents and overvoltages, the protection circuit comprising:

protection devices each having a heating resistor and a fuse element provided on a circuit board; and

sensing means for detecting an overvoltage across any of the batteries in the battery pack and switching a current flowing into the heating resistor,

wherein the plurality of protection devices are connected in parallel,

wherein in an overcurrent condition, the fuse element is melted at each protection device, and

wherein in an overvoltage condition on any of the batteries, the sensing means switches on the current flowing into the heating resistor, thereby causing a voltage across a predetermined number of the batteries in the battery pack to be applied to the heating resistor of each protection device, causing the heating resistor to generate heat, and causing the fuse element to be melted.

Claim 10 (new): The protection circuit according to claim 4, wherein the heating resistor is connected with a rectifier element to prevent conduction resistance from remaining via the heating resistor when an overcurrent has caused the fuse element to be melted incompletely.